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ABSTRACT

In a discussion of the development of higher education in America, its European roots are traced to provide a historical perspective to some current issues. The paper examines the Renaissance, the Reformation, and the Enlightenment in relation to the influence that each of these historical periods had on the first colleges and universities in this country. The theological setting for education during the middle ages is examined. The shift to humanistic considerations during the Renaissance is noted as is the swing back to religious origins during the Reformation. The emergence in the eighteenth century (just as American colleges were being established) of a period of interest in the physical world and the work of scientists (i.e., the Enlightenment) is surveyed. Four contributions are identified as distinctive to the American system of higher education: (1) the proliferation of small liberal arts campuses, (2) a commitment to the idea of a college education in terms of a four-year baccalaureate program of studies, (3) the belief that Christian morality is a central responsibility of education and the doctrine of in loco parentis, and (4) autonomy combined with the basis for societal responsiveness. The importance of the Yale Report, the emergence of specialization (including scientific research) and the land grant college movement are discussed. A 100-item bibliography is included. (PHR)

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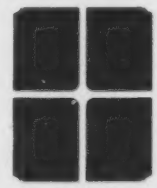

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PROLOGUE TO THE AMERICAN SYSTEM OF HIGHER EDUCATION: Higher Learning in Western Culture

by

E. D. Duryea

Occasional Paper Number Four

Department of Higher Education
Faculty of Educational Studies
State University of New York at Buffalo

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PREFACE

The current problems facing American higher education are neither completely unprecedented nor are they unique to the United States. Professor Duryea's paper, the fourth in our continuing series, provides a useful historical perspective to current discussions. University-society relations, demands for reform, debate concerning undergraduate education, and other issues are discussed in this paper in a refreshing context. Historical insights can inform debates which are all too often centered only on current crises. Professor Duryea's discussion of the development of American higher education and his tracing of its European roots and traditions provides an additional comparative dimension.

E. D. Duryea is currently engaged in a broad consideration of the historical development of American higher education. His previous occasional paper in this series focused on the governing boards in American higher education. He has written extensively on unions in higher education and serves as Professor in the Department of Higher Education, State University of New York at Buffalo.

Robert O. Berdahl
Chairman
Department of Higher Education

CONTENTS

INTRODUCTION	1
MEDIEVAL BACKGROUND	4
RENAISSANCE	9
REFORMATION	15
ENLIGHTENMENT	21
EARLY AMERICAN COLLEGES	28
Importance of Colleges	31
The Yale Report	40
EMERGENCE OF THE MODERN ERA	42
Specialization and Its Applications	46
Secularization and Science	52
Practicality and Specialization	56
CONCLUSION	61
SOURCES	68

The modern American system of higher education approaches in the final decades of this century its first centennial. No one has plans for some formal celebration, or does there exist much widespread recognition of the occasion. It would be difficult in any event to determine a specific date. Nevertheless, the origins of the contemporary extensive and diversified array of colleges and universities do lie in the final decades of the nineteenth century, the consequences of what Richard Hofstadter called "the revolution in higher education between 1870 and 1910." (1963, 269) It is the intent of this paper to place this educational metamorphosis in the context of broader historical developments associated with the higher learning and its universities since medieval times. It assumes that educational institutions exist as creations of society requiring relevance to the quality of their culture if they are to hold positions of significance, to attract students, and to receive essential support.

The changes referred to by Hofstadter support this generalization. The earlier literary or classical colleges against which they must be measured served their times well enough. They had a genuine relevance in the early days of a republican political and mercantile economic system. In that era, the meaning of a college education was clear to those who served it; it was designed for boys who would rise to leadership roles in the church, government, and commerce. As late as 1871, the educationally conservative President of Yale, Noah Porter, summarized its essence, as follows:

> What this country demands is a larger number of educated men who are elevated and refined by a culture which is truly liberal; men whose convictions are founded in manifold reading and

> comprehensive thought; men with the insight which comes only from a larger converse with history, a profound meditation on the problems of life and speculation, and a catholic taste in literature. (Hofstadter and Smith, 1961, 700)

It came as a very stark contrast that within forty years of Porter's remarks the higher learning in this country evidenced a diversified array of institutions and functions. Public and private four-year colleges and universities, two-year junior colleges, technical institutes, professional schools and normal schools enrolled students from increasingly heterogeneous social, economic, and geographical backgrounds who sought from their educational experience preparation for increasingly varied careers. These institutions dealt with an expanded spectrum of knowledge and its application. The academic values associated with them stemmed from a totally new undertaking, that of the graduate school and its commitment to the extension of knowledge. As historian of the era, Laurence Veysey, affirmed, "the American university of 1900 was all but unrecognizable in comparison with the college of 1860." "Despite significant elements of continuity in the change," he continued, "the college scene before 1865 seems archaic indeed when set against the new and rapidly working forces of academic reform." (1965, 2)

For this nation, the alteration of the higher learning effected a successful adaptation to a parallel transformation of the society described by Henry S. Commager.

> The decade of the nineties is the watershed of American history. As with all watersheds the topography is blurred, but in the perspective of half a century the grand outlines emerge clearly. On the one side lies an America predominantly agricultural; concerned with the domestic problems; conforming intellectually at least, to the political, economic, and moral principles inherited from the 17th and 18th centuries--an America still in the making, physically and socially; an America on the whole self-confident, self-contained, self-reliant, and conscious of its unique character and of a unique destiny. On the other

> side lies the modern America, predominantly urban and industrial; inextricably involved in world economy and politics; troubled with the problems that had long been thought peculiar to the Old World; experiencing profound changes in population, social institutions, economy, and technology; and trying to accommodate its traditional institutions and habits of thought to conditions new and in part alien. (1950, 41)

It is the thesis of this analysis that while both the American society and system of higher education at the turn of the century emanated from indigenous circumstances, they both were profoundly influenced by the progress of European culture. An informative grasp of how and why the higher education of this country responded as well as it did to its societal environment requires this broader context. Such a thesis opens up a very wide scope of historical analysis, one well beyond the task at hand. However, if the focus remains sharply on the higher learning as an organized enterprise and upon conditions associated with this enterprise, the task assumes more manageable proportions. From this circumscription, what follows strives not to chronicle the history of the university in western society but rather to explore antecedents pertinent to the emergence of the American higher education in twentieth century.

It follows that if one seeks a frame of reference to understand the revolution from 1870 to 1910 it becomes necessary to look both backward and abroad: backward to the medieval era in which the western university first appeared and abroad to subsequent developments associated with those three historical epochs called the Renaissance, Reformation, and Enlightenment.

However, if one seeks historical generalizations with which to interpret this background, one has to derive some impulse which fueled the evolution from medieval to modern. It is the further thesis of this analysis that the evolution of the higher learning in western culture has reflected a pervasive

shift from theistic to secular premises for understanding man and nature. The medieval society evidenced a unity of thought and purpose "which had its roots not only in that commonly shared conception of a single harmonious universe governed by one infinitely wise God, but also in the conviction that all first premises of right thought and right action were divinely revealed truths rather than discoveries made by human reason alone." (Chroust, 1947, 423) The twentieth century social order has its unity also, but one in which revelation has given way to human reason.

To understand the nature of American higher education as it took its form at the turn of the century, therefore, it becomes important to review this transition from medieval to modern, the salient aspect of which lies with the development of secular, especially scientific, knowledge. This paper examines in general terms this transition within the context of three major historical epoches known as the Renaissance, the Reformation, and the Enlightenment and their influences upon first the early colleges and the university as it evolved in this country.

MEDIEVAL BACKGROUND

Looking back only to the middle ages constitutes an arbitrary limitation in many respects. The higher learning as we know it today comes to us over a long historical continuum, from the flowering of Greek civilization and before. Yet, the point can be made with considerable substance that the institution most intimately associated with the higher learning, the university, did take form during the course of the twelfth century in France and Italy. It achieved its institutional dimensions of organization, curriculum, and

function in its society in the thirteenth century and continued in western culture in its essential form to the present era. In contrast to earlier centers for advanced learning, the medieval universities existed as formal centers for large numbers of students and teachers. They originated practices and customs now traditional: formal classes based upon organized and segmented knowledge; curriculums leading to degrees; an administrative structure employing officers such as rectors, deans, provosts, and proctors; and an institutional existence dependent upon formal authorization from a sovereign power, initially the Papacy but in time the state. Colorful medieval dress now graces our commencements. Anecdotes associated with university life confirm that in many respects the youthful vigor of students has not changed so dramatically over the centuries.

The medieval university's significance as a vital institution in its day and as a progenitor for institutions of higher learning which followed lay with its close connection to the major intellectual innovation of the medieval era. It took form and flourished in the context of the extraordinary renaissance of the twelfth century which reintroduced knowledge and learning to western culture. The century proved over time a critical one for western thought, an era when a few scholars in the west "became aware of a vast corpus of classical material which had hitherto been but dimly glimpsed," (Cobban, 1975, 7) and in which the first significant copying of manuscripts and interpretation and teaching of a previous, richer culture took place. Adventuresome clerks (for only in the monasteries and other agencies of the Church was thereliteracy and some pretense to knowledge) crossed into Moorish Spain to uncover the works of the Greeks, especially Aristotle, which had been translated into Arabic. These efforts received reinforcement through

Mediterranean commerce, the capture of Constantinople, and the early crusades which brought Europeans into first-hand contact with the more advanced civilizations of the eastern Mediterranean. "The eleventh century forms the transition between one of the darkest and what was in many respects the brightest of all the centuries generally included in the 'Middle Ages'." (Rashdall, 1936, I, 31) By the close of the thirteenth century, "the men of Western Europe had built up a rounded and fairly homogeneous civilization." (Randall, 1976, 15)

Within the context of political and social stability, of economic progress and urban revival, and of improving communications, medieval scholars took up the task of understanding and communicating the learning of the past and did so primarily in the lecture halls of the nascent university centers. Concurrently, the maturation of European civilization which accompanied these developments opened up to the universities a second function even more important for their vital role in their society, that of preparing the "professionals" who served as administrators, lawyers, theologians, and experts in general for the maintenance of an increasingly sophisticated society.

In this manner, the medieval universities established in the process of their formation the dual service of the extension of knowledge and of utilitarian instruction. The first is described most fully by Hastings Rashdall in The Universities of Europe in the Middle Ages. The twelfth century, in his view, became "an age of hope and vigour and active religious enthusiasm. . . . A passion for inquiry took the place of the old routine. The Crusades brought different parts of Europe in contact with one another and into contact with the new world of the East --- with a new religion and a new philosophy, with Arabic Aristotle, with Arabic commentators on Aristotle, and eventually

even with Aristotle in the original Greek." (1936, I, 32) The medieval educational menu was enriched from a spartan fare of basic literacy to a lavish intellectual feast of speculative philosophy. The cooks, if one were to continue this rather forced figure, were the great scholastic philosophers who grappled with the task of interpreting and constructing in organized and logical terms the doctrines of the Church, but who also included the dissenters of the age, such as Anselm, Roscellinus, Abelard, and ultimately the great Thomas Aquinas who synthesized the divergent beliefs. They perfected the logical dialectic of scholasticism, which with Abelard as he lectured to the students of Paris reached the point that it became in fact a university movement, and in doing so brought together philosophy and theology and in time "a whole cycle of medieval studies." (Rashdall, 1936, 43) By the beginning of the thirteenth century, as a consequence, the awakening intellect of Europe was inextricably intermingled with the lectures and readings of the university masters.

While the provocative stimulation of stimulating ideas may have given the universities their distinction, their sustenance derived from a service function. "Their roots," in the words of Medievalist A. B. Cobban, "were inextricably bound up with utilitarian values. They evolved as institutional responses to the pressures to harness educational forces to the professional, ecclesiastical, and governmental requirements of society. . . . Their essential purpose was to increase educational opportunities for students of ability destined for professional employment within the ecclesiastical hierarchy or civil government, or in some legal or medical capacity." (1975, 8) For the majority of students, attendance at the university proffered secular opportunity, no matter how it might be cloaked in the guise of their clerical

status. Thus, by the middle of the thirteenth century, one finds in medieval writings complaints voiced about the worldliness of students and their dedication to the "lucrative arts, such as law and medicine." The prospect of economic gain and good social position made possible with a degree motivated a quick passage through the arts course to gain full positions or advanced studies. "For the majority of students. . . the main priority was the speedy absorption of a selected area of learning in preparation for a chosen career." (Cobban, 1975, 12) Even the study of theology favored those looking for a position in the Church. Learning was pursued in an active relationship with the social order.

Finally, in reviewing medieval precendents for contemporary higher education one must at least recognize a third aspect of the higher learning which was by no means as clearly delineated as the two functions mentioned above and which carried forward through the English universities rather than their continental counterparts. This was the medieval precedent for what today we call a liberal or common education. Marjorie Reeves accentuated this in her brief history of European universities. "The feature of the medieval curriculum," she writes, "which astonishes one most is the continuity in the conception of what constituted the basis of learning in a civilized society. Originating in the old trivium and quadrivium, there evolved in the lower faculty of arts a course of study which all students had to complete and which contained "certain forms of knowledge which. . . all educated people ought to have, together with the basic skills necessary to the arts of communication." (1970, 64) The history is not clear, however, although apparently as the university centers began to emerge out of the earlier cathedral schools the arts courses did include some study of classical literature. Students were introduced to

humanistic values of earlier civilizations, but these studies proved of limited duration. "From the outset, the study of classical authors was largely squeezed out of Europe's first university curricula, finding only a pale reflection in the elementary subject of grammar which, at Paris and the English universities, was relegated to the position of a necessary but preliminary study of the arts courses proper, a study which might well be completed by the student before he came up to the university." (Cobban, 1975, 15) What one can say is that there were medieval precedents to the study of Greek and Latin classics which gained a central position in subsequent centuries and, more importantly, that the arts or lower medieval faculty continued in the English and American tradition as a common experience for students planning to continue their studies in advanced and professional subjects.

History, therefore, confirms in broad dimensions at least the origination in the middle ages of the three essential facets of the higher learning as it was institutionalized in the university. But one has to recognize, also, that the medieval origins are shrouded by a very different culture, one, as noted previously, infused with a theological conception of reality which set values and permeated all facets of society.

RENAISSANCE

As the Christian unity of the medieval era centered upon the Church in Rome began to dissipate in the fourteenth and fifteenth centuries, writers of a philosophical bent began to shift their attention to considerations of this world. However, their orientation remained to the past rather than the future; their medium of expression became that of the Greek and Latin classics, in place of the revelations and scriptures. Labeled by historians as the

Renaissance, this evidence of an increasing prevalence in European thought of attitudes and interests associated with the mundane concerns of life on earth marked the first facet of the transition from the medieval to the modern age in western society and its institutions.

The Renaissance does not present a clearcut era for which one can date a beginning and end. Its origins intermingled with the intellectual movements of the middle ages; its spokesman never broke with the essential tenets of Christianity. At the other end historically, the Renaissance idealization of life through classical literature persisted well into the nineteenth and even early twentieth centuries, to lose its vigor only as the force of modern science and implications of the industrial revolution gained momentum in western society. It is impossible, therefore, "to speak of the Renaissance as though it were a single age or single force, and had a definite date. . ." Rather the name has served to identify the flowering of intellect and culture which accompanied "the great fundamental economic growth of European society and its rising middle class" in the post-medieval centuries. (Randall, 1976, 111, 143)

As one reviews the nature of European societies during the two centuries preceding the opening up of colonial America, it proves difficult not to relate the changes of the Renaissance era to the material prosperity which accompanied the increase in trade and commerce. The unified but provincial world of medieval times encouraged a locally-oriented economy, in contrast to which that of Renaissance era established the sinews of international communication and encouraged not only the exchange of goods but the exchange of knowledge and ideas. Concurrently, temporal power shifted from the domination of the Roman Church into the hands of national kings who grasped control from the Pope and Holy Roman Emperor to carve up Europe geographically

into national states. Papal sovereignty gave way to a divine right. Filial loyalty to the Father in Rome shifted to a secular sovereign and national patriotism. Both economic prosperity and national states fostered the rise to influence in the affairs of the western world of a new elite whose position rested upon commercial wealth and whose sons infiltrated the bureaucracies which managed the affairs of the new kingdoms.

For education and especially the universities, this social restructuring introduced both a new constituency and a new substance. In its most essential aspect, literacy became increasingly important. Trade and commerce required written communication, just as did the administration of the national states; both were outside the Roman church which previously had monopolized this skill. Protestantism which accompanied the Renaissance relied upon a reading of the Bible.* On a broader and more advanced scale, the sons of the new ruling class found themselves obliged to acquire a familiarity with the reading and writing of documents if they wished to retain their hold on political power which lay with the bureaucracies of the royal courts. Nor could they manage their estates or succeed in the world of commerce without a knowledge of law and finance. At the same time, their worth in the higher levels of society was enhanced by a knowledge of the classics, a skill in the courtly graces, and an appreciation of the arts.

Within the broader parameters of the Renaissance it was the humanists

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* In the expansion of the circle of educated persons who shared a commitment to the Renaissance ideology, one must not overlook the importance of the new art of printing. "It is difficult to see how the great movements of the next century, the permeation of the humanistic attitude, the spread of the Reformation, the rise of national literatures to consolidate the national states, could have occurred without the printed page." (Randall, 1976, 120)

who sought the changes in education essential to integrate it with the changing requirements for successful participation in the influential circles of society. The humanists constituted, in effect, a reform movement in education critical of the scholastics for the barrenness of their studies and the use of medieval texts and glosses, although not in an opposition Christianity. They aggressively sought to introduce the study of the original writings, both of religion and of literature. Latin remained the language of the learned, but it was augmented by the study of Greek and Hebrew. The universities submitted to this pressure and opened their studies to the writers of antiquity, to an appreciation of classical language and style, and to some knowledge of the history of ancient civilizations. As a consequence, within the universities "the scholastics held the chairs of logic, natural philosophy, and metaphysics, while the humanists held the chairs of grammar, rhetoric, and moral philosophy." (Butts, 1973, 203)

The seventeenth century English universities, progenitors of the early American colleges, retained much of the medieval past.* Histories of these institutions confirm that inroads of the humanistic, classical studies had not forced out the traditional medieval learning. "The Elizabethan Arts course," according to Craig R. Thompson, "was firmly based on the old medieval trivium and quadrivium /the seven liberal arts/. In his first two years an undergraduate studied mostly rhetoric and Aristotelian logic and some arithmetic and music."

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* It is important to recognize that by the seventeenth century the English universities had become, in the words of historian Albert Mansbridge, "federations of independent and autonomous colleges." (The Older Universities of England, Longmans, Green, London, 1923.) Thus, it was the life, education, and organization associated with them which carried over to the colonies and served, in part, as precedents for the early colleges in America.

(1959, 9) Similarly, historian Joan Simon refers to "the father of the boy who in the 1570s found Cambridge still steeped in scholasticism, whatever changes there might have been, and still dominated by a traditional philosophy 'only strong for disputations and contentions. . .'" (1966, 357)* It is not surprising, therefore, to find these remnants of medieval education carried over into the American colonies. Samuel E. Morison confirms, for example, that the seventeenth century curriculum at Harvard College included the use of medieval disputations which "had for their subject-matter the several Arts that were studied and were conducted by the rules of logic, according to a ritual practically unchanged from the days of Abelard."** (1936, 143) The curriculum of 1723, for example, was imbedded in the use of Latin and stressed logic, rhetoric, natural philosophy, and mathematics--leavened only somewhat by the classical authors, geography and physics, and Greek and Hebrew for an understanding of the New Testament. One must remember that as late as the 1630s the Laudian statutes for Oxford ruled "that Aristotle's authority is paramount." (Curtis, 1965, 241)

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* "To secure the B.A. degree sixteenth century scholars /in Cambridge and Oxford/ were to be in residence for sixteen terms, or four years, to attend certain specified lectures, and to perform prescribed academic exercises. The lectures for these men usually covered five or six of the seven liberal arts and three philosophies, and in time an additional subject--Greek." (Curtis, 1965, 86)

** The medieval character of the colonial colleges is documented by James J. Walsh in an interesting analysis of senior theses presented at college commencements. "The mental and moral philosophy of these theses, the metaphysics and ethics as taught by the college presidents and tutors," he concluded, "were a direct heritage from the Scholastic philosophy of the medieval universities." (1935, 11)

Despite the educational conservatism of the universities, leading English intellectuals of the sixteenth century such as Thomas More, Thomas Elyot, and Edmund Spenser did espouse the ideas of humanism "as a common standard of cultural merit." (Butts, 1973, 201) Within this frame of reference, they and their intellectual consorts looked to Greek and Roman antiquity for the criteria to set standards for the English social order. Early in the sixteenth century, for example, Greek and Hebrew were introduced for graduate students along with the study of Greek and Hebrew philosophy. (Morison, 1936b, 234-5) In the course of the century, also, some of the newer colleges at Cambridge and Oxford assumed the leadership in this direction as "centers of humanistic interests." (Caspari, 1968, 255) In part, the pressures for the humanistic studies came from the Throne itself under Henry VIII, Edward, Mary, and Elizabeth, a situation "clearly recognizable for the new charters, statutes, and courses of studies of the grammar and 'public' schools." (Caspari, 1968, 254)

The humanists prescribed education for youth "in the spirit of classical antiquity and of Christianity" to the end of "training in virtue and good letters." They responded with enthusiasm to secular interpretations of the nature of man and knowledge stemming from the writings of the ancients, their own conceptions about the requisites for an educated man, and their sense of the practical requirements for the role of an educated elite in the post-medieval society. Their ideal was that "of the learned, responsible gentleman who devotes himself to the tasks of government" which became the model for an increasingly active and powerful gentry who on the basis of fortunes made in commerce and industry were replacing, in consort with the Tudor monarchy, the nobility of the medieval past. (Caspari, 1968, 256, 279) The key elements

of their program were two: that "all educated men. . . should be trained to imitate the classical language and style in their own writing and speaking" and that as such they "should achieve an understanding and appreciation of ancient Graeco-Roman civilization as the best means of preparing them to deal with their own life and times." (Butts, 1973, 204)

The curriculum of the early American colleges reflected the Renaissance combination of the medieval curriculum and the humanistic attention to the ancient classics set in the context of Christian morality. Thus, one finds in the programs of the colleges logic, rhetoric, and natural, mental, and moral philosophy in tandem with Latin, Greek, Hebrew, and through these languages an exposure to the writings of such ancients as Plutarch, Cicero, Plato, and Aristotle.* And, as their English predecessors, the leaders of the colonial period and early Republic, viewed the humanistic studies as prerequisites for those who would direct religious and political affairs.

REFORMATION

The second major epoch in the transition in western culture was the Reformation. This religious revolution against the hegemony of the Roman Church outwardly responded to specific grievances, such as the sale of indulgences, and to a general decadence in Catholicism but may be best understood as the natural, although unconscious, adaptation of religion to the needs of a new social situation. "The individualism, the nationalism and the commercialism

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* Harvard of the seventeenth century offered the following studies: grammar, rhetoric, and logic; Greek and Hebrew (as well as a review of Latin required for admission); mathematics and astronomy; physics (or natural philosophy); metaphysics and moral philosophy; some history and geography; and catechetical and biblical studies. (Morison, 1963a)

of the new age were all reflected in the Portestant church." (Smith, 1957, I, 357) It came in tandem with the secular posture of the Renaissance, a religious counterpart in many respects to the turning away from medieval scholasticism to the Greek and Latin classics. From the perspective of the higher learning, however, as Randall comments, "neither the Renaissance nor Reformation was the movement that produced the really great revolution from the medieval to the modern world; that was effected by the gradual development of science, and science, though indirectly stimulated by both, was at best an almost accidental by-product in each case." (1976, 164)

Nevertheless, the ready acceptance and dispersion of Protestant theology in northern Europe following Martin Luther's challenge to the Roman Church in 1520 created for both the European universities and the American colleges two conditions which ultimately had to be disposed of before they could accept science and the extension of secular knowledge. One was the association of Protestantism with nationalism and a consequent alliance between political and religious leadership. The second was a view of education as an agency for the propagation of the faith and the preservation of theological orthodoxy.*

For the American colleges, the relationship established between the English Crown and the universities undoubtedly had a great deal to do with their initial character as institutions created predominantly by sectarian leaders yet viewed as performing an educational mission important for and desired by the general society. "Under Elizabeth's long reign from 1558 to 1603 the so-called Elizabethan settlement was achieved whereby the Church of England was

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* It is not surprising, therefore, that Protestantism with its reliance upon education in close association with the reading of the Bible followed the invention and spread of printing in the fifteenth century.

established, and enough reforms were made to satisfy large numbers of Englishmen." (Butts, 1973, 188) The Queen's policies culminated reforms which originated in 1533 when Henry VIII decreed himself supreme head of the Church and broke with Rome and which combined in the Crown the religious-political headship of England. In the process "both church and universities were reduced to dependence on the Crown." (Hill, 1972, 109) By the third decade of the next century, under the leadership of Archbishop Laud during the reign of the Stuarts the pressure for religious conformity mounted within the universities as leaders of the English church looked to them for an educated ministry and viewed them as an essential enterprise for the public good. "'No universities, no ministry' was the theme of Presbyterian Thomas Hall and others; no learning, no confutation of heresy." (Hill, 1972, 112)

Whatever the ultimate effectiveness of the Laudian decrees and the efforts to enforce conformity, the higher learning served as a support for established theology, a function which the first settlers carried to this side of the Atlantic in their own terms. It was the Puritans' "intense belief in the reformed doctrine of justification by faith alone, their acceptance of Calvinistic theology, . . . their reluctance to allow any authority over conscience in matters of faith other than that of God as He revealed His will in Christ and the Scriptures. . ." which drove them into opposition to the English church and to emigrate to New England. (Curtis, 1965, 189) When they arrived in America, in their turn, they resolved to create an enclave for "Reformed Christianity. . . to vindicate the most rigorous ideal of the Reformation, so that ultimately all Europe would imitate New England." (Miller, 1956, 12) To this end, they looked to education and to the colleges as the means for fusing church, state, and learning.

The Reformation triad of church, state, and education dominated the colonies, with the exception of the more cosmopolitan Philadelphia which did not contain the same religious homogeneity as other sections. "No nation of Europe had yet divided the state from the church; no government yet imagined that religion could be left to individual conscience." (Miller, 1956, 105) "The settlers saw themselves as Englishmen and Protestants, and they accepted the joint authority of secular and ecclesiastical government." (Herbst, 1974, 15)

In the enforcement of religious conformity, the Puritans did not use the English pattern of a state church, but relied upon a joint directorship of both state and church. A common leadership wore two hats. When they founded the first colleges, colonial leaders placed their superintendence in the hands of a board of control comprised of men of stature and sound moral principles who would assure that impressionable youth gained its education in an appropriate Christian environment. They used lay (non-academic) committees or boards apparently derived from universities in Holland and Scotland, but combined these antecedents with a second precedent of the English conception of chartered corporations. The corporate form derived from an English legal device of Roman and medieval origins used as a means to "conduct affairs deemed important for the good of the kingdom yet beyond the scope of the immediate officialdom," a social mechanism which fit the milieu of the colonies.* (Duryea, 1973a, 40) They first placed the colleges in the hands of orthodox

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* The precedent was set by Yale College. Both its original statute of 1701 setting up a "collegiate school" and the 1745 act for "the more full and compleat establishment of Yale College" as "an incorporate society or body corporate and politick" contained provision for a single board of non-academic governors. Previously, both Harvard and William and Mary were chartered with two boards. The 1650 enactment for the former set up a Corporation composed of the President and Fellows and a Board of Overseers;

ministers who dominated their governing boards; the second made possible the subsequent shift in control as the leadership in society passed in the nineteenth century into the hands of the holders of political and economic power responsive to secular values and materialistic achievement.

To assure doctrinal hegemony in the states within their dominion, Protestant leaders fixed their attention upon the schools and universities as primary establishments. In contrast to Catholicism, in the reformed churches "the external and institutional side was subordinated to the heart and conscience of the individual." (Randall, 1976, 52) Whatever their sectarian differences -- and to a degree these were critical for the individual's relations with God -- both Luther and Calvin concurred in the "supreme authority of the Bible" and in the individual's access to the scriptures. If the priesthood were to go, as they decreed, then the individual needed direct access to the word of God, which necessitated its translation into the venacular and literacy to enable its reading. It was not surprising, therefore, that education took an important position in the Protestant domains. Protestant reform in the German universities, to illustrate, "meant a broad attack on the autonomy of academic corporations by demanding the subordination of academic affairs to the needs of the territorial-confessional state for trained administrators, ministers, and teachers." (Herbst, 1974, 19) The spread of learning under the spirit of the Reformation "was furthered above all by the

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* the latter in 1729 had a corporate body of "the President and Masters, or Professors" under the supervision of a Board of Visitors. While certainly at William and Mary and quite possibly at Harvard, the founding statutes intended academic management under external overseers, by the nineteenth century control by boards of external non-academic members was well established for both corporations.

development of a system of officials, clerical and lay, with an academic education; about the middle of the seventeenth century there was not a single village in Germany without a clergyman who had received his education at a university." (Paulsen, 1908, 90) In England "one of the most striking characteristics of the Puritans was their belief in the value of education as a weapon against the three great evils of Ignorance, Prophaneness, and Idleness." (Stone, 1964, 71) Education served the Protestant churches by preparing a learned ministry who understood as well as believed the scriptures and an educated body of laymen who could read for themselves the word of God and thus know the "shallowness of the aesthetic and emotional attractions of Popery" and of heretical teachings.

This Protestant tradition of education controlled by a church-state oligarchy and designed for the education of a ministry and of a social elite-directed the educational aspirations of the colonists. Frederick Rudolph describes the process as follows:

> In its initial impulse the American college grew out of the tradition in European Calvinist communities of founding new colleges or reshaping old ones 'to preserve the purity and continue the propagation of the faith.' Harvard, Yale, and Princeton were the consequences of good Calvinists doing what they expected of themselves. William and Mary in Virginia and King's College in New York were similar in being the work of concerned Anglicans. (1977, 26)

In the words of the charter of the College of William and Mary, the educational scheme transported to the colonies served "to provide a supply of clergymen" and youth "piously educated in good letters and good manners." The theological impulse of the Reformation abetted the humanistic bent of the Renaissance to fashion a pious and educated leadership for the new society.

ENLIGHTENMENT

During the eighteenth century, at a time when the early American colleges were being established and in the process of formulating their educational programs,* a new orientation toward the nature of man and the physical world was gaining the enthusiasm of European intellectuals. Known now as the Enlightenment, this phenomenon incorporated the creative minds of the era in a reaction against the traditional authority of Christian revelation and Aristotelian philosophy and the preoccupation with Greek and Roman classics. Its adherents rejected supernatural bases for truth and knowledge carried over from the medieval past, grasping instead upon the work of the early scientists and especially the writings of seventeenth century English pioneers such as Francis Bacon, Issac Newton, and John Locke. In science especially, writers of the Enlightenment stressed man's ability to look at nature himself; they demonstrated an increasing confidence that truth lay within the powers of observation and human reason. They joined in the promotion of an "ambitious program. . . of secularism, humanity, cosmopolitanism, and freedom" directed toward the improvement of that status of human beings in this world rather than the next.**

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* While Harvard opened its doors in 1636, the other eight colonial colleges appeared in the next century. William and Mary, although chartered in 1693 did not assume status as a college until 1729. Yale was founded as a collegiate school in 1701 and a college in 1745, New Jersey (Princeton) in 1746, Rhode Island (Brown) in 1764, Queens (Rutgers) in 1766, Dartmouth in 1769, Philadelphia (Pennsylvania) as an academy in 1740 and a college in 1755, and King's (Columbia) in 1754.

** "The mentality of a given epoch is conditioned not only by the soil of material institutions from which it grows, but by the climate of the intellectual atmosphere in which it lives. This intellectual atmosphere is the world-view held by the dominant classes." (Smith, 1957, II, 20)

The philosophers who comprised the leadership of this cultural movement formed an international association, a "loose, informal wholly unorganized coalition of cultural critics, religious skeptics, and political reformers from Edinburgh to Naples, Paris, to Berlin, Boston to Philadelphia." (Gay, I, 1968, 3) The Enlightenment epoch initiated although did not achieve the break with the medieval and Renaissance past leading to a new consensus toward the end of the nineteenth century.

In the retrospect of history, the Enlightenment probably represented an inevitable reaction to the religious conflicts that accompanied the Reformation both between Catholics and Protestants and among the competing sects which constituted the latter. Once the unity of Christianity had been opened up to alternative versions of the ultimate truth, it was natural for men who stood apart from the churches and their controversies to develop some readiness for other explanations. "Inheriting from their ancestors the belief in absolute truth and in a reasonable and comprehensive universe, the philosophers of the Enlightenment found a new standard of truth in science, and a new scheme of the universe in the astronomy of the seventeenth century." (Smith, 1957, II, 20)

The most distinguishing characteristic of the Enlightenment was that of a confidence in human reason. "It was the Age of Reason, the age in which human understanding enjoyed a higher authority than it has ever enjoyed before or since." (Smith, II, 19) At the same time, it served as a transition to the modern era; its adherents retained much of the past. They accepted -- at times with caution and at times with great enthusiasm -- the emergence of science, and the use of the mathematical idiom by such authorities as Descartes, Hobbes, de Spinoza, and Leibniz opened up the potential of that ultimate in rationality,

a mathematically-ordered nature. Yet, except for the more radical Frenchmen of the later eighteenth century, they may have modified conceptions of revealed religion, but they never broke with the basic tenents of Christianity. Darwin's Origins of the Species with its far more radical conception of the nature of this world remained for the next century.

Out of an enthusiasm for human reason and the study of nature "as the whole rational order of things, of which man was the most important part" (Randall, 1976, 274), the Enlightenment made several important contributions to western thought as it impinged upon the American colleges. It paved the way for an acceptance of scientific knowledge as the basis for knowing the physical world and for broadening the powers of human intellect. It amplified the Renaissance orientation to life on earth leading to a concern with the more practical problems which inhered in human existence. It displayed an optimism about human nature in terms of a belief in the inherent goodness of humankind and its potential for happiness. While its strongest roots may have drawn sustenance from the study of nature through observation and induction, its spirit flowed over to broader conceptions which laid the groundwork for the American ideology of political and religious freedom, democracy, and economic opportunity and readied American institutions for an acceptance of science and secular knowledge during the course of the nineteenth century.

Historical evidence documents an intellectual intercourse between Americans and European intellectual leaders of the Enlightenment in various countries of northern Europe. In his Empire of Reason, for example, Henry S. Commager describes the correspondence of a Professor Christopher Eberling, German librarian associated with the Universities of Halle and Gottingen, with friends in New England and the influence of a Francis Van der Kamp of Leiden who maintained

regular contacts with such Americans as John Adams, Thomas Jefferson, and Benjamin Franklin. Adams, Franklin, and Jefferson and other colonial leaders travelled in France, England, and Scotland and engaged in regular correspondence with their European counterparts. Indeed, Franklin's reputation abroad reached a "mystical status" that led Bishop Berkeley to call him "one of the 'wisest heads and noblest hearts' of the century." (Smith, 1957, II, 397) As Peter Gay notes in his history of the Enlightenment, "European philosophers were regarding British America as a land of potential allies, even of leaders, in the march of human Enlightenment." (1969, II, 556) Referring to German, English, and Scottish antecedents, educational historian R. Freeman Butts summarizes the cross-Atlantic interaction, as follows:

> Each of these growing forces began to affect American life and the American college before the end of the eighteenth century. From England came the new sciences and philosophy which gradually made their way into the American college curriculum despite opposition of those who favored the linguistic and literary subjects. From England also came political and economic theories of individual freedom which gave ideological justification to the American middle classes in their struggle for power. American colleges also soon felt the influence of the Scottish universities which had accepted the new sciences and had enunciated the doctrine that utilitarian subjects should also be admitted to the college curriculum and that students should be allowed to choose some of their subjects. (1939, 57)

In very general terms, therefore, the eighteenth century American colleges felt the impact of the Enlightenment in two dimensions. First, by mid-century the newer studies of the sciences had begun to break the monopoly of moral, mental, and natural philosophy, although they were still viewed as philosophy rather than science and certainly very tertiary to concerns with Christian ethics and mental discipline. (Fierling, 1971) A gift of books written by Newton and Locke to Yale in 1714 appears to have introduced the new learning to college teachers, although clearly no one act

could have handled the inevitable westward flow of ideas. By the middle of the century Newtonian science and Lockean philosophy were making substantial inroads into "Protestant scholasticism." (May, 1959, 33) Mathematics came first. Interestingly, it appeared as algebra in the Yale course of study of 1718, followed by a fuller mathematical course which included geometry and astronomy twenty-five years later. William and Mary established the first scientific professorship in 1711, and by mid-century Harvard and Yale had studies which introduced students to the concepts of Copernicus and Newton, "although Yale did not create a professorship of natural philosophy and mathematics until 1770." (Rudolph, 1977, 35) The colleges in Philadelphia and New York "whose advantage it was to have been founded in the midst of the Enlightenment" supplemented the classical studies with those of a more practical and scientific bent. (Hofstadter, 1961, 194) By the Revolution six of the eight colonial colleges, "had professorships of mathematics and natural philosophy." (Rudolph, 1977, 35) "During the last quarter of the century the college studies had become thoroughly infused with the influence of Newton and Locke and their popularizers." (Hofstadter, 1961, 193) Moreover, while the Greek and Roman classics provided the basis of a gentleman's library, educated persons and college students were familiar with such literary figures as Shakespeare, Milton, Smollett, Fielding, Pope, and Addison who competed with the ancients as arbiters of good literature.

Second, an assessment of the influence of Enlightenment ideology in America must recognize that the new scientific knowledge did not challenge established religion. There existed a generally accepted sentiment on the part of the eighteenth century scientists and shared by colonial intellectuals that study of the laws of nature supported the existence of God and confirmed

His works. In this respect they echoed earlier advocates of science, such as Francis Bacon, who may have agreed to the importance of analysis based upon observation and cast aside preconceptions and assumptions common to their times but who remained sufficiently integrated into their culture to accept the primacy of the Scriptures. They echoed the sentiments of John Locke that reason and experience fitted with divine revelation.* (Curti, 1937, 114-5) One finds in American thought of the late eighteenth and early nineteenth centuries sectarian imperatives based upon Protestant doctrine in company with secular notions of the Enlightenment. "The relation between these two major idea systems is basic to the understanding of eighteenth century America, and indeed, I would say, the understanding of America in any period." (May, 1976, xii) "God had implanted common sense in the human mind, the Scottish philosophers asserted, thereby enabling man to trust his perceptions and, through them, to apprehend God's ways." In Lockean terms "God offered mankind through nature knowledge which was independent of scriptural revelation." (Howe, 1970, 38)

The philosophical lubricant which eased the shift in the colleges away from the stern dogma of Calvinism flowed primarily from the Scottish philosophers and their notion of common sense. Formulated by Thomas Reid and refined by his disciples, common sense (or intuitive reason) accepted the scientific views of Francis Bacon and the reasoning of John Locke to compromise the rational and scientific perspective with the essential tenets of religion. The

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* However, as Merle Curti stresses in his essay on the influence of Locke in American thought, acceptance of the dualism of God and Nature "fed the springs of deism, inasmuch as its pleas for reliance upon sensory experience and reflection rather than on innate ideas and the 'mysterious' tended to undermine the traditional sanctions of orthodoxy." (1937, 115)

Scottish philosophy proved moderate, practical, and easy to teach, "never antiscientific nor obscurantist, never cynical, and it opened no doors to intellectual or moral chaos." (May, 1976, 346) As such it fitted the needs of the more moderate Calvanistic leadership of the colleges and encouraged acceptance of science as a handmaiden to theology.

In the words of Daniel W. Howe, "the Scottish Enlightenment was probably the most potent single tradition in the American Enlightenment." (1970, 31) It offered to the theologians who controlled most of the early colleges a posture which enabled them slowly to accept the necessity of studies in the sciences, languages, and political and economic philosophy pressed upon them by the changing conditions of the American culture. Scottish educational theory and practice proffered precedents broad enough to fit the American scene yet without threat to postulates of religious leaders. Douglas Sloan, historian of the Scottish Enlightenment, describes how Scottish educators "in eighteenth century were already seeking solutions to three of the most perplexing problems in modern higher education," those which by the end of the nineteenth century were to be accounted for by the American university. The first of these was the rapid expansion of knowledge which induced in Scotland the introduction of specialized professorships, a practice begun in turn in the late eighteenth and early nineteenth century by the colleges of this country and accepted universally by the end of the nineteenth. The second had to do with the relevance of new knowledge to society, for which the "Scottish professors took the lead in applying their scientific investigations to agriculture and industry," anticipating by a century a major role of the land grant colleges. Third, the Scottish Enlightenment moved from a literal acceptance of the Scriptures as moral law to a moral

philosophy which "promised to uncover natural ethical laws that would enable men in all circumstances to decide how they ought to act and to what purposes they should apply their knowledge." (Sloan, 1971b, 29, 242-3)

In the reality of life on a college campus, one suspects that the ideas of the Scottish Enlightenment helped to rationalize the necessity of accommodating at least somewhat to the societal milieu. Thus, college presidents and their trustees acceded to pressures for new courses of a specialized and applied nature to a limited degree at least. More importantly they recognized the erosion of the authority of revealed religion in an increasingly secular society and responded through a stress upon moral philosophy, generally handled as a senior, capstone course taught by presidents which stressed duty, virtue, and belief. As Norman Fiering commented in a history of President Samuel Johnson,* "for the American intellect moral philosophy was the semi-secular way station between the great era of theological dominance and the present when objective science presses so hard on all other modes of experience." (1971, 233)

EARLY AMERICAN COLLEGES

The early settlers of the North American continent brought with them a Protestant commitment to education formed by the values, ideas, and practices of the Renaissance and Reformation. Although influential in its time, the Enlightenment arrived somewhat later as the early institutions began to mature during the latter part of the eighteenth and early nineteenth

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* Yale graduate in 1714 and president of King's College from its founding in 1754 to 1763. (Fiering, 1971, 200)

centuries. Colonial leaders looked upon the colleges as the training grounds for civil and ecclesiastical servants and the wellsprings for religious orthodoxy, but conceived this role in the context of an education deemed proper for a gentleman. This meant a knowledge of the classical literature as advocated by the humanists. Whatever their aspirations, however, those who cultivated the early colleges had to accept the restrictions imposed by a frontier land with its scarcity of teachers and surplus wealth. Until after the Revolution the program of even the better institutions was limited and rudimentary and the clientele lacked in preparation.

Despite the restrictions of physical and social environment, the colleges did gain positions of status in the American society, sufficiently so that their graduates moved into significant roles in religious, political, and commercial affairs and that the early campuses were emulated by literally hundreds of others founded by the first half of the nineteenth century. Their life proved a long one, extending their original Protestant commitment for a pious and humanistic education to the end of the nineteenth century. Only by the turn of the twentieth century was their educational philosophy and program, in the words of historian George Peterson "significantly altered" by changes which followed the Civil War. (1964, 147) By that time, their presidents, trustees, and professors had to accept a role as one segment of a burgeoning system of institutions and accede to the admission of a plethora of new, specialized subjects activated by the universities and land-grant colleges.

As significant contributors to the American society, however, the life span of the colleges proved of less duration. The second two colleges--William and Mary and Yale -- did not achieve college status until the first

quarter of the eighteenth century, and it was after the middle of this century before the remaining six colonial institutions had been established. In fewer than one hundred years -- certainly by the 1850s -- the colleges had begun to move away from the mainstream of the national culture and the more perceptive educational leaders had begun to urge radical reforms. As previously noted, they were institutions of a republic political system and mercantile economy as well as Protestant religion headed by men of the cut of Washington and Jefferson, Franklin and the Adams, Madison and Monroe, Gallatin and Calhoun. Republican mercantilism, however, gave way in the 1820s to a new kind of democracy, one which turned away from the social responsibility of its predecessor to militantly vocalize political egalitarianism and to support laissez faire economic opportunity. And the colleges found an accommodation to the new order difficult.

In the interim, the colleges did offer an important service for the development of the new nation, importing at least the rudiments of western intellectual achievements and graduating an educated leadership. For a society deeply committed to the tenets of Protestant Christianity, they prepared an educated clergy. As the eighteenth century progressed and, after the Revolution, the country began to achieve material prosperity from its commerce and the opening up of western lands, their graduates entered careers in commercial establishments, law, and medicine. Throughout, their alumni contributed to the society's political leadership.* Furthermore, they proved receptive to

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* Of the fifty-six who signed the Declaration of Independence, for example, twenty-one had graduated from the nine colonial colleges. Nearly a third of the members of the Continental Congress held degrees. "The three young men who persuaded New York through the Federalist papers to ratify the Constitution, thus saving it from defeat nationally, all had been educated in the colonial colleges: Hamilton and Jay at Columbia and Madison at Princeton." (Cowley, 1961, 214-5)

some of the scientific and more practical studies having a functional value. "Throughout the colonial period science had not only been one of the basic components of the curriculum, but the colleges had attempted to keep abreast of the latest advances in scientific discoveries and methods. By the end of the eighteenth century, the scientific curriculum had expanded immensely, new teaching methods. . . had been introduced, and the utility of science was generally a recognized and lauded ideal." (Sloan, 1971a, 232)

Importance of the Colleges

The early colleges belonged to the period of transition, and not to the modern era. As such they presented a unique combination of external, European influences and of responses to indigenous conditions. The essentials of their organization, curriculum, and pervading values derived from medieval origins as altered by the classical culture of the Renaissance and its ideas of an educated gentleman, the Protestant Reformation with its commitment to an intimate church-state-education relationship, and the Enlightenment espousal of reason and science as it opened up new vistas for human understanding but did not break with the tenets of Christian relgion and the ideal of the ancient classics. "Whether they liked it or not, the colonial colleges were burdened with perpetuating the learning and culture of Europe." (Rudolph, 1977, 28) Their successors after the Revolution continued to serve as ports for the importation of antecedent learning.

Nevertheless, the circumstances of the early civilization in America pressed onto the colleges characteristics distinctive from their European precursors and set patterns permeating higher education in this country to the present time. Indeed, by the middle of the eighteenth century the nine colonial colleges had shaped an American system of collegiate education

"different not only from the English models. . . but from all others as well." (Hofstadter, 1961, 114) By the turn of the nineteenth century, the example of the colonial college had taken a firm root in the educational thinking of the new nation, and the movement to the frontier westward carried with it sufficient enthusiasm for the collegiate ideal that more than 500 had been chartered by the time of the Civil War. An estimated 176 of these continued on a permanent basis into the twentieth century. (Tewksbury, 28; Naylor, 262)

As might be expected, the men who led the way in the founding of these institutions, primarily ministers, had graduated from the earlier colleges of the seaboard and thus conceived of them in this frame of reference. They established organizations and educational programs in a replication of their own experiences -- most frequently at Yale and Princeton -- as the resources of money, facilities, and staff allowed. And in the process they established firmly in the American culture a distinctive form of higher education expressed in the ideology of the collegiate experience leading to a four-year baccalaureate degree.

In sum, the early colleges created for the American culture its particular genre which influenced the transition from medieval to modern and created qualities distinctive to the higher learning in this country. For this introductory survey, four characteristics stand out as the distinctive contributions of the colleges to the modern American system of higher education.

The proliferation of colleges in the early nineteenth century created a host of small, "liberal arts" campuses which continued to the present as a distinguishing feature of higher education in this country. Several influences contributed to the process. Geography certainly had a great deal to do with it. Westward expansion combined with the expense and difficulty

of travel favored the founding of scattered small colleges over major, centrally located, institutions designed to handle large numbers of students, whatever the economic and educational gains might have been. In a time when travelling 300 miles to and from college each year cost more than the tuition and board combined, students and their families perforce looked for opportunities closer to home. And these opportunities were provided by a combination of denominational competition and local pride. Imbued with the Protestant commitment to an educated ministry and a desire to insure the proper religious milieu for the sons of the faithful motivated the churches to support, even if with hardly more than bare necessities, the founding of colleges. However, the nature of the American society worked against a denominational saturation of a region sufficient to ensure adequate numbers of the faithful, so that institutional survival necessitated that they enroll students from various backgrounds and in turn that they maintain a non-sectarian course of study, although within a rigorous Christian campus environment.

The sectarian competition found a parallel enthusiasm in the hard-driving, optimistic, expanding frontier communities in what Daniel J. Boorstin has labeled the "booster spirit" of the newly found cities. "No community could be complete without its college or university," he writes. "Usually the denominations gave the initial push and provided a plan, but the whole community, regardless of sect, then built and maintained the college." (1965, 155) As the Reverend Julian M. Sturtevant reminisced about his efforts to establish a college in Illinois, "it was generally believed that one of the surest ways to promote the growth of a young city was to make it the seat of a college." (Hofstadter and Smith, I, 241) He describes an amalgamation of

sectarian leaders and land speculators.

Whatever instigated their founding and however minimal were their resources and educational programs, colleges were promoted and those parents who sent their sons to college embraced the moral security of the sectarian campus as a safe haven for their offsprings. An institution, unique in western culture, had arrived and has remained.

With the early colleges there came a commitment to the idea of a college education in terms of a four-year baccalaureate program of studies. In contrast to the European continental universities which admitted the students from a system of elementary and secondary schools, the proliferating early colleges offered the bare minimums of advanced studies taught by a hardy group of poorly paid and inadequately prepared teachers, mostly clergymen, to a meager number of equally ill-prepared students. "Stated entrance requirements were low, and much of the college course was on a level with the present-day high school program." There existed a "chronic shortage of adequately prepared students, willing to invest time and money in academic studies and to sacrifice countless immediate rewards." (Crane, 1963, 4-5) Nevertheless, a goodly number of the colleges did maintain themselves so that on the better campuses at least the parameters of a standard baccalaureate curriculum did begin to take shape in the tradition of English predecessors.

The colleges of the older, eastern states had by the turn of the nineteenth century created a reasonably comprehensive course of studies. These were centered on the Greek and Roman classics, remnants of the medieval Aristotelian philosophy, and English grammar and rhetoric, but as the century progressed newer studies began to make an appearance. Modern languages, especially French, were offered. Scientific studies, embyronic a century

earlier, gained credence, as evidenced by the appointment in 1802 at Yale of Benjamin Silliman as professor of chemistry, geology, and mineralogy. Natural philosophy began to give way to chemistry, physics, geology, and biology, at least in rudimentary form. The study of history and of political economy gained acceptance. "Most colleges in the decades before the Civil War found themselves drifting into certain practices intended to hold themselves and the curriculum together -- electives, options, partial courses, parallel courses." (Rudolph, 1977, 83) These were the means by which, however grudgingly, the educational establishment sought to improve its status and entice students. In the process it created an American version of the medieval and humanistic conceptions of the liberal arts designed for a cultivated and informed citizen and anticipatory of a higher level career.

This conception of a college education sank deep into the tradition of American higher education. It has remained there, despite the continuing intrusions of the practical and useful. An undergraduate degree may have become the stepping stone to a career or to advanced, specialized study, but it has remained in the eyes of both faculty and citizenry something more, something associated with the ideal at least of an educated person.

The Reformation commitment to Christian morality as the central responsibility of education entrenched firmly in the early colleges the doctrine of in loco parentis which pervaded undergraduate education until recent decades and which led to an equally strong student counter culture. In a real sense, the two cultures epitomized broader forces at work in the American culture. Educators accepted as their task the appropriate preparation of youth for the role of educated gentlemen and leaders in society, as has been noted, but viewed this role with strong overtones of moral leadership based upon Christian orthodoxy,

against which standard "earthly knowledge could not help seeming somewhat trivial." (Veysey, 165, 26) "Moral purpose, values, the reality of heaven -- those were the focus of the early college." (Rudolph, 1976, 4) And, while these religious criteria softened as the nineteenth century drew to a close and the criteria for social achievement shifted to a secular materialism, the obligation for the well being of the undergraduate persisted, especially as the enrollment of young women increased. Only the task was transferred to an emerging administrative cadre of deans and student personnel officers.

Trustee, president, and teacher absorption in the early colleges with moral values responded to both societal and religious concerns. They viewed the college education as essential for the leadership role of graduates in the maintenance of a well-ordered society. From their patriachal perspective, they faced what they perceived as children rather than maturing youth. "A boy entered college a fourteen or fifteen and graduated four years later, still not full-grown." (Schmidt, 1957, 79) Parents perceived not only the advantage to their sons of an opportunity for social advancement (which paid off in the world of the professions and commerce) but for an institutional milieu which provided a firmer discipline than they could require at home. This, in turn, received reinforcement from the founding aims of religious sects which created the great majority of the colleges and the piety of the clergymen who, with very few exceptions, administered and taught at them. Christian faith and morality provided the foundation for a proper education. Mental discipline through a strict academic system of required studies taught largely by rote was part of an interlocking set of psychological, theological, and moral convictions which permeated the campus atmosphere. The training of the mind in terms of a discrete set of mental faculties merged with a strict regime

for campus life.

Presidents and teachers implemented these principles by rigorous controls applied through detailed regulations; students responded in turn not only by pranks, unruliness, and rioting but by turning inward, so to speak, to develop their own culture. Before the end of the eighteenth century, student debating or literary clubs had become an important part of campus life, encouraging campus activities and assembling libraries which competed with curriculum of the colleges. By the Civil War Greek-letter societies had become common as a means of "an escape from the monotony, dreariness, and unpleasantness of the collegiate regime." (Rudolph, 1962, 146) By the end of the century inter-collegiate athletics had begun to contribute a further dimension that rounded out the excitement and pleasures of campus life. Students had created for themselves a galaxy of activities which enticed the youth able to attend and provided an experience which firmly fixed the undergraduate ideal as an integral part of going to college.

By the turn of the twentieth century two conditions had ensued. Going to college for the undergraduate of middle class background who attended had become a part of growing up, an experience largely focussed upon the social life of the campus. College was a time for fun, for a vital experience, and for a honing of one's social character before entering the "real world" of business or professional life. For the college or university, the division between student and faculty culture was deeply marked. "The academic experience held such different meanings for the students and instructors that their minds for the most part met only the basis of temporary, intermittent compulsion." (Veysey, 1965, 294)

Finally, in a different dimension, the early colleges set the precedent

for a system of institutional government which provided for American higher education on the basis for considerable autonomy combined with the basis for societal responsiveness. As noted in the prior discussion of Reformation influences, the colleges were established as corporations under charters granted to independent governing boards consisting of non-academic members. The founders of the colleges had no desire to create autonomous institutions. Quite the contrary, Calvinists in the north and Episcopelians in the south both viewed the colleges as integral to their Reformation tradition of religious unity and conformity assured through government, church, and education. The circumstances of the colonial and early Republican eras, however, supported boards of control with sweeping powers, strengthened by a sectarian allegiance and nurtured by the accepted English practice of the state delegating to private agencies in the form of incorporated bodies the right to perform services needed for the public welfare. With the rise of secular and republic sentiments after the Revolution, the unity of church and state began to fall apart, a trend supported, in its turn, by a religious diversity among the newer emigrants and a falling from political power of the original Puritan and Anglican leadership.

Initially, in the spirit of the new Republicanism of the turn of the nineteenth century, the political leadership of the new nation sought to bring the colleges more directly under the control of the new state governments. This effort climaxed with the famous Dartmouth College Case decision. In that decision, Chief Justice Marshall of the Supreme Court confirmed "the college as a private institution and interpreted its charter as a contract binding upon the state of New Hampshire as well as the trustees." (Duryea, 1973b, 20) As a consequence, although many colleges continued to seek public support,

state governments ignored, with few exceptions, their pleas and, in the south and newer states of the west, supported the foundation of public colleges more responsive to public control. By the decade of the 1870s the course set by the Dartmouth decision toward a separation of private from public colleges had reached its end. Control, not funding, was the critical vector. "The term of a charter and not the source of financial support determined the public or private character of an institution." (Duryea, 1973b, 112) "All institutions of learning are performing a function which is essentially public in character. . . . Public support is to be distinguished from public control." (Brody, 89-90)

The use of lay boards of control steered American institutions also toward a distinctive organizational pattern. Fundamentally, of course, the chartering of a board eliminated the continental role of ministries of education as the point of final authority, for public as well as private institutions. As the center of formal authority, boards accepted a managerial responsibility and the necessity of an executive head or administrator to implement on a day-to-day basis this responsibility. Out of this basic organizational situation, enhanced for the early colleges by the absence of an established body of masters or teachers to whom corporate authority, in the English tradition, might have been granted, emerged the office of the president.* The presidents of the early colleges served as executives for boards. For the first two centuries, this involved a relatively simple and personal, almost paternal, relationship

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* Precedent for the office lay with the English college headships -- wardens, masters, provosts, presidents, or rectors -- who were usually elected by the fellows, although originally not necessarily one of them. The head served as the administrative officer, overseeing internal affairs and endowment and properties. (Duryea, 1973b, 27)

with students and teachers. But it established the office firmly, so that after the Civil War aggressive, competent presidents gathered to their office the reigns of power. The major universities, which grew in size and complexity and became the paramount institutions of the era, did so under the leadership of strong presidents acting as executives for their boards.

The Yale Report

The institution which probably best epitomized the educational spirit of the early colleges was Yale. As a center of religious orthodoxy it stood as a kind of mecca for Calvinist sects as they extended their churches into the west and south and as a source for ministers who participated frequently in the founding of newer colleges. Challenged by a criticism of its existing program and pressure to introduce more utilitarian studies and different methods of instruction, the President and faculty of Yale published in 1828 their famous report, "a vigorous assertion of the merits of the old order." (Schmidt, 1957, 55) It was a conservative but an able document. Far from being a defensive apology for a passing system, it asserted in a positive vein the educational principles and practices which lay at the heart of the college system of its day. It reiterated the judgment of Thomas Jefferson that education had a responsibility to "develop the reasoning faculties of our youth, enlarge their minds, cultivate their morals, and instill into them the precepts of virtue and order." (from Lee, 1961, 118) It recognized that Yale and its fellow institutions were colleges not universities; and, as such, their function was preparatory, in the word of the Report "to lay the foundation of a superior education" for professional service, for further study, and for life in general. (Hofstadter and Smith, I, 275) It fitted with the insistence of the great reform president of Michigan in the 1850s, Henry Tappan, that a

true university "was absolutely inconceivable apart from a thorough preparatory education at the college level." (Sloan, 1971a, 245)

The Yale Report appeared, however, on the eve of modernity, at a time when the transition was drawing to a close. In this sense, its principles rested upon an allegiance to a passing era. "In the ancient literature," the Report declared bluntly, a student "finds some of the most finished models of taste. . . he learns the power of the language in which he is to speak and write." It continued:

> By logic and mental philosophy, he is taught the art of thinking; by rhetoric and oratory, the art of speaking. By frequent exercise on written composition, he acquires copiousness and accuracy of expression. By extemporaneous discussion, he becomes prompt and fluent and animated. (Hofstadter and Smith, I, 1961, 278-9)

But in the view of the Report even this important achievement held a secondary role to moral indoctrination at a point in the life of students when their welfare required "a substitute be provided for parental superintendence." (Hofstadter and Smith, 1961, I, 280)*

Wahtever its inherent validity, the Report at its best served only to bolster a passing era.** The times were moving differently. It was in that same year, 1828, that Andrew Jackson was elected President of the United States, the symbol of a new era, one which presaged a turn to secular, materialistic standards and values concomitant with the oncoming industrialization of the

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* Even as the Report was written, however, the students were diversifying to include one-quarter (in New England at least) who came from poorer families unable to finance them and who "aspired to the middle-class professions" and saw education as a means to this end. Moreover, nearly 30 percent of the students in the 1820s were older and more mature than in previous -- or later -- eras, so that the ideology of the classics and in loco parentis proved,to say the least, awkward. (Allmendinger, 1975, Ch. 1)

** At the time of its issuance, Yale held a position of great esteem and influence, one symbolized by the comment of Lyman Beecher, a leading educator of the middle west, referring to a commitment "for God, for country, and for Yale." In the judgment of historian George Schmidt, "the influence of the Yale Report can hardly be overestimated. Conservatives everywhere were encouraged to resume the fight against innovators and philistines." (1957, 56)

nation. For the future, education would have to accept and espouse more strongly science and technology and offer an experience holding forth a more immediate social utility. It marked both the summit of the early colleges and the waning of their relevance for a new culture accompanying the industrial revolution.

EMERGENCE OF THE MODERN ERA

By mid-nineteenth century, it was apparent to the perceptive observer that the cultural homogeneity of the colonial and republican years was giving way to a new order. The pervasive authority of Protestant Christianity which undergirded the "discipline and piety" of the early colleges was being blunted by the secular values of the frontier and an increasingly industrialized, urban way of life pressing westward from the northeast. The mercantile economic and political system of the early days of the Republic was rapidly losing power to the entrepreneurs of laissez faire who were hewing out a new elite of corporate capitalists. "Jeffersonian equality, the right of every person to an equitable chance. . . , to his innate human dignity, and his fair station before the law" (Nevins, 1962, 21) was being replaced by an egalitarian enthusiasm which denounced social stratification and espoused unrestricted freedom to go as far in life as opportunity, hard work, and ability allowed, especially in the pursuit of economic gain. The new age of Jackson was one of economic, industrial expansion in which money became power and the frontier fostered freedom and political leaders with broad cultural backgrounds and sense of social responsibility were being replaced by practical businessmen with names such as Morgan, Carnegie, Gould, and Vanderbilt. From European

sources, the study of Nature within the parameters of Christianity was giving way to scientific investigation based upon a new set of criteria for the determination of reality, anchored in the biological investigations of men such as Darwin and Huxley and in the development of mathematical physics which produced the genius of Einstein, Planck and their scientific generation.

In his introspective autobiographical history of the nineteenth century, Harvard historian Henry Adams -- himself a product of the passing era -- recognized the emergence of the new society. "The attempt of the American of 1800 to educate the American of 1900," he wrote, "had not often been surpassed for folly; and since 1800 the forces and their complications had increased a thousand times or more. . . . The most elementary books of science betrayed the inadequacy of old implements of thought." (1918, 479) "The movement from unity into multiplicy between 1200 and 1900," he continued, "was unbroken in sequence, and rapid in acceleration." (1918, 498) In the same vein, a half century later historian Henry S. Commager confirmed Adams' observations. "The neat, orderly universe of the Enlightenment -- a universe governed by laws whose nature could be discovered by man -- was disintegrating under the blows of Darwinian evolution, the new physics, and the new biology; and philosophers, baffled or disillusioned in the search for universal laws, contented themselves with analyses of its fragmentary and fortuitious manifestations. . . . It was all part of the process of coming of age, a strenuous effort to come to terms with a new economic and philosophical order for which Americans were but inadequately prepared by experience or by instruction." (1950, 47-8)

Within this national condition, the Yale Report marked the zenith of the

early colleges. By the 1860s the future challenged them with a clear dichotomy: to become ineffectual as social insitutions and thus die or to change. What followed, of course, was change; what Richard Hofstadter has called "the revolution in higher education." "After years of what seemed to be fruitless agitation," he observed, "the university era began abruptly." (1963, 273) Following the Civil War and extending into the first decade of the twentieth century the collegiate institutions became themselves universities or acceded to the educational eadership of the universities, with their decisive commitment to new educational functions closely aligned with what Peter F. Drucker has described as "the industrial world revolution." In the course of these forty years, the unity of the college expressed in its classical studies, Christian values, and humanistic function yielded to the diversity of the university.*

The American university has been called "a nineteenth century creation and a twentieth century success." (Bledstein, 1976, 290) To the baccalaureate course of the early college it added the graduate school with its commitment to research and scholarship and a complex of professional schools which

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* In the sense used here, the "university" includes the land grant colleges fostered by the Morrill Act of 1862 and committed to agricultural and engineering studies and an extension of educational opportunity. Although three decades passed before the ideals of the Act had been achieved in practice, it marked a significant step toward diversification and utility in higher education and certainly proved a major break with the ideals of the old colleges as stated, for example, by Yale's President Porter. (Quoted on page 2.) As documented in Veysey's history, the university emerged as the institution which epitomized the new era and set the pace for higher education, despite the tenacity of the colleges and the continuation throughout the present century of their importance as institutions.

expanded the traditional trinity of theology, law, and medicine to include an array of fields ranging from engineering and agriculture at the time of the Civil War to librarianship and forestry at the turn of the century. To the fixed and limited program of studies it added a wide variety of courses accompanying the broadening scope of knowledge, first in the natural and then in the social sciences. To the concept of higher learning for the liberally educated gentleman it introduced the importance of specialization as the basis for a learning which had usefulness in a dynamic society undergoing transformation from a rural, agricultural to an urban, industrialized order. To the indirect service of graduating an educated leadership, it broadened the educational function to include direct service to society in the form both of advanced knowledge suitable for application in agriculture, business, and social and political affairs and of professional expertise available as consultants.

It was the university which institutionalized the revolutionary changes in higher education following the Civil War. As the distinctive educational establishment of the new education, it dervied from a complex of conditions associated with the changing character of the American culture and its interaction with Europe. Within the broader perspective, however, this national development intermingles with influences at work in the totality of western civilization which underlay the growing dependence of society upon human reason and secular knowledge. It reflected as well a concomitant shifting away from a religious based authority -- first in the office of the Papacy and then of the divine right rationalization for national monarchies -- toward a recognition of the rights of individuals. From this dual perspective of the American society and the western culture three general conditions emerge

as the essential attributes of the formation of the higher learning in the present century. The first essential lay with the expansion of knowledge into specialized components, first in the natural then in the social sciences and finally into what has become known as the humanities. Accompanying secular knowledge, the latter decades of the nineteenth century evidenced substantial inroads into the sectarian domination of the higher learning, in large part as a consequence of the implications and general acceptance of Darwin's theory of evolution. Finally, higher education began to respond to the ideology of egalitarian democracy in the sense that it initiated the opportunity for graduates of a rapidly expanding secondary school system to prepare for roles in the expanding industrial and business economy of the twentieth century.

Specialization and Its Applications

Specialization which accompanied the extension of knowledge served as the vehicle for the educational reforms of the nineteenth century. Its roots lay in science, in "the mathematico-physical experimental learning of the seventeenth and eighteenth centuries, that really wrought the changes from the intellectual world of the Middle Ages." (Randall, 1976, 469) For the university world, it first gained acceptance and then enthusiastic support in Germany where the medieval philosophies were being segmented into such studies as language and literature, history, and mathematics and chemistry, physics, and other fields in the natural sciences. In the decades when American colleges were joining together in support of the position of the Yale Report, German scholars were pressing forward their work in mathematical research and scientific investigations. The German faculty of the arts, which encompassed the new studies, had become "the largest and most highly esteemed department of the University." (Smith, II, 1934, 206) In contrast to the disciplinary

role of the college teacher in this country, the German professor was becoming a scholar of dignity and status. The German society was recognizing "a full-time occupational role, that of the university professor whose professional duties explicitly included research." (Ben-David, 1972, 369)

Although ignored in the main stream of the early colleges, the German example was not unnoticed in this country and served to stimulate and support efforts for reform on the part of American scholars. One of the first such enterprising Americans was George Ticknor. Dubious about what he thought of as "the pools of stagnant learning in Germany and England," prior to a European visit, he returned in 1816 enthusiastic about the "admirable facilities for study and inducements to it offered by a German university." (Storr, 1969, 15) As a professor at Harvard, he led an effort for reform reflective of his experience, an effort which had little lasting effect. Ticknor's experience, however, anticipated a procession of American scholars to the Germany which included men who became influential academic leaders and college and university presidents. The flow of scholars to Germany became substantially larger after the Civil War to reach an estimated total of 10,000 by 1910. They returned home impressed with advances in scope of education and with the system which allowed students to pick the courses they desired and to engage in a high order of scholarship. More significantly, they felt the importance of the new scientific knowledge and gained a broadened perspective on the nature of higher education. One scholar was Andrew Dickson White, the pioneering president of Cornell when it opened in 1868 as the first major American institution committed to an extension of the scope of a college education to include scientific and practical as well as classical studies. Reviewing his experience in Berlin, he spoke enthusiastically. "I saw my ideal of a university not only realized,

but extended and glorified -- with renowned professors, with ample lecture halls, with everything possible in the way of illustrative materials, with laboratories, museums, and a concourse of youth from all parts of the world." (Hofstadter and Smith, II, 551)

In the decades which followed the Civil War, the influence of Germanic ideals of scholarship and research gained a firmer foothold and increasingly exerted an effective pressure against the tenets of the Yale Report. "This University," the newly elected President of Harvard, Charles W. Eliot, declared in his 1869 inaugural address, "recognizes no real antagonism between literature and science, and consents to no such narrow alternatives as mathematics or classics, science or metaphysics. We would have them all, and at their best." (Eliot, 1969, 1) With this resolution, he initiated a forty-year term of office and successful effort to open the University to specialization based upon the new studies and to the opportunity for students to choose their educational directions. However, it was at the founding of Johns Hopkins University, seven years later, that the Germanic ideal of the professionalization of learning gained credence. Its first president, Daniel Coit Gilman, assembled there a coterie of professors each of whom had attained status in a field of learning. Gilman achieved "the nearest approximation of a modern German Philosophical Faculty that had yet been seen in the United States." This group of scholars "was given complete freedom 'to carry on the higher work for which they had shown themselves qualified'." (Brubacher and Rudy, 177) Their influence and their students, in a manner not without parallel to the Yale graduates a half century earlier, spread out into positions of academic leadership throughout the university world carrying with them the ideals and values of scholarly investigations at an advanced level.

The pioneering period for the German universities was associated with the rapid development of the fields of knowledge and their formation into a systematic array of specific disciplines. This lasted well into the nineteenth century. However, by the concluding decades the initiative was shifting westward across the Atlantic. The expansion and differentiation in Germany was decelerating. In the process the newer fields of the social sciences and the various specializations within engineering never obtained recognition in the German universities which had begun "to offer increasing resistance to the introduction of new sciences which had mushroomed outside their walls" and to resist "disciplines which had begun to develop organically within the established disciplines." (Ben-David and Zloczower, 1962, 49)

In contrast, in this country under the impetus of Johns Hopkins, the contrary proved to be the case. The extension of knowledge and formation of new disciplines at the graduate level encountered little resistance as a consequence of the expansion of higher education and competition among its institutions. "As a result older colleges developed graduate departments and professional schools, technical institutes and state colleges introduced humanistic studies and social sciences, and all types of schools . . . developed research in a variety of basic and applied fields." (Ben-David and Zloczower, 1962, 73) A decentralized system of colleges and universities had taken form wherein the internal structure of faculties had begun to parallel that of knowledge itself in the form of departmentalization. In tandem with specialization, graduate schools held out the doctors degree as the certification critical for an academic appointment and concurrently as an award for advanced, specialized study. Graduate study became the fountainhead for values which pervaded academe. The great majority of institutions may have concentrated

primarily upon undergraduate studies for students far removed from scholarship and research, but the professors increasingly viewed themselves as specialists and looked to achievements in graduate schools as the basis for appropriate academic service.

From German precedents two complementary facets of the graduate university came into being. First was the ideal of Wissenschaft stressing learning and research as a worthy endeavor for their own sake. Following from the presumption that knowledge was not fixed or final, this sentiment, or perhaps more accurately phrased academic spirit, contributed to the freedom of the professor to follow a line of inquiry which his professional expertise supported as worthy. It contradicted efforts to confine research into areas deemed of direct importance for the society which supported the university and thus stimulated an intellectual creativity essential to the extension of knowledge. Second, although the German universities supported and protected unfettered scholarly endeavor, the German society did not lack an appreciation for the contributions of learning to national development. "It was after 1848, with the compact between the bourgeoisie and the princes, that the scientists became pillars of state and scientific education was favoured and magnificent laboratories began to be built. It was from Germany that the next phase of science was to come, with its close links with the new monopoly industries, particularly the chemical industry, and with the state, particularly in its military aspects." (Bernal, 1970, 144) The famous Siemens family industries, which contributed substantially to the creation of modern German industry, exemplified this advance. From the start, the Siemens both supported and drew upon the academic scientific expertise of the universities in the creation of a gigantic electrical industry.

While at first industrial innovation tended to be more technological than scientific, the importance of the latter as the foundation for agricultural improvement and industrial technology became apparent, as did the research activities of the universities. "The half-century between the Civil War and World War I saw the development of the scientific and technological bases of the new industries which were to remake the country in the post-World War I period." (Baldwin, 1954, 13) As economist John K. Galbraith has observed, "the industrial system, by making trained and educated manpower the decisive factor of production, requires a highly developed educational system. . . . Modern higher education is extensively accommodated to the needs of the industrial system. . . .The great prestige of pure and applied sciences and mathematics in modern times, and the support accorded them, reflect the needs of the technostructure." (1967, 377-8)

It was the talent of the American university -- and with it higher education in general -- that it adapted to the nineteenth century progression of the American society. Presidents, and many faculty members as well, recognized with a clarity not apparent even in the German universities the importance of bulwarking the extension of knowledge with attention to its application. While the values of the graduate school may have set standards, presidents and professors promoted an expansion of the curriculum whereby students found opportunities to study in a variety of programs designed to prepare them for vocational ends. Going to college proffered the opportunity for an education useful in the life that followed. By the first World War, the higher learning had achieved integrity with the expanding industrial society. The society, in its turn, responded with financial support from the private fortunes made possible by business enterprise and from appropriations by state legislators

who began to see practical value in the new education. In short, knowledge, and especially scientific knowledge, had moved from "an elegant ornament of society. . . to an essential factor in the everyday production of goods and services." (Bernal, 1970, 153)

Secularization and Science

As long as human beings remained the center of God's universe and the scriptures were accepted as the literal interpretation of how and why humankind existed on this world, the centrality of piety and Christian morality withstood the most strenuous attacks on the educational doctrines of the early colleges. Prior to the Civil War, the ministers who headed and taught in the colleges may have held some misgivings about the findings of science but accepted it, at least in the form of natural philosophy, as an appropriate, if a very secondary, part of the educational program. In their turn, "American scientists. . . almost unanimously took the position that science was a true handmaiden to theology." (Sloan, 1971b, 239) "The progress of science, interpreted as the advancing knowledge of God's laws, gave men greater confidence in their own foreknowledge, so to speak, of what God would do." (Hofstadter, 1955, 201) In the context of the prevalent doctrines of Scottish realism, the scientists of that era accepted their work as complementary to theology; and the theologians, in turn, could accept scientific findings as a further contribution to their doctrines. In the context of a kind of uneasy truce in these terms, the colleges continued to offer limited access for students to the writings of Enlightenment philosophers, but their presidents insisted also upon the priority of the classics and of the piety of revealed religion.

By the middle of the century, however, science had taken a new turn which

undermined the uneasy truce and contributed substantially to the demise of the classical college and its theological leadership. In 1859, Charles Darwin published in England his Origins of the Species, a book that "was both the scientific high point of the nineteenth century and in the minds of many of its readers the most direct challenge science had presented to some of the tenets of organized religion." (Wolfe, 1972, 85) From the outset, Darwin's conception of evolution in terms of natural selection received a positive reception on the part of American scientific leaders such as Asa Gray at Harvard and James Dwight Dana at Yale and from the college presidents who stood at the vanguard of educational reform such as Eliot of Harvard, White of Cornell, Gilman of Johns Hopkins, and David Starr Jordan of Stanford.

Yet, it must be recognized that Darwinian theory did not lack precedents in this country. Earlier work in geology by Louis Agassiz, Professor of zoology at Harvard, by Dana, and by other scientists had softened the fundamentalist views of many college educators. Nor was Darwin perceived immediately as a contradiction to revealed religion. Writing as late as the turn of the century, for example, Gilman of Johns Hopkins, remarked that "one of the most encouraging signs of our times is that devout men, devoted to scientific study, see no conflict between religious faith and their scientific knowledge." (Hofstadter and Smith, II, 1961, 645) The writings of the more liberal ecclesiastics through the turn of the century evidence not only a recognition that an accommodation with the principles of evolution was needed but that it was possible.

In assessing the impact of Darwinism, however, one must avoid a kind of direct cause and effect conclusion. The ideas of Darwin had important significance for science and, in this sense, contributed to a lessening within

scientific circles of a literal acceptance of revelation. For society Darwin's thesis about natural selection fitted an era infused with the ideology of free enterprise and thus gained the kind of acceptance which further strengthened secular as against theological values, leading to serious second thoughts among both popular writers and theologians about biblical doctrines. Darwin's ideas fitted and strengthened the spirit of a time when religious authority had already begun to lose its potency as a determinant of the proper life.

Within the college and in the emerging universities, one consequence of this social change proved a shift in leadership from clergymen to laymen, a condition documented by Earl McGrath's study of membership on governing boards.* As board membership became increasingly secular, drawn from the ranks of businessmen, lawyers, bankers and similar representatives of economic power, trustees turned to secular presidents who, in their turn, opened up collegiate halls to a more intensive study of science and in the process of evolution. Such leadership, it should be noted, was not irreligious. Quite the contrary, at least outward evidence of religious conformity remained an essential facet of both appointment and continued service. They came as a changing of the guards, so to speak. "They were hostile to religious bias which prevented the acceptance of Darwin and they opposed sectarian control of the colleges." (Metzger, 1961, 71) What the theory of evolution did was to dramatize an alternative basis for interpreting the nature of human

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* He reported a drop in clergymen from 39 percent in 1860-61 to 16.5 percent in 1910-11, accompanied by a rise in businessmen and bankers as board members from 27 percent to 43 percent. (1936, 264)

existence which blunted the force of sectarianism in education and supported not only the shift in leadership but the introduction of new subjects for study and, as a consequence, of a new kind of professoriate. The criteria of religious orthodoxy, primary in the early college appointments, ceased to hold for the selection of faculty members. "As competence displaced orthodoxy, the new university promoters began quietly to ignore sectarian criteria in choosing professors, and they found themselves upheld by their boards of trustees." (Hofstadter, 1963, 277)

In addition, Darwinian evolution supported the introduction of science as a major component of university study. It contributed substantially "in the popular mind to a belief in earthly progress." (Brinton, 1963, 148) Science proffered a ready vehicle to propel this progress and, as such, achieved acceptance as an endeavor of merit, worthy of support. Clearly, evolution constituted only a part of the shift away from religion to a reliance upon scientific discoveries and theories as society's orientation for understanding the nature of human existence and for providing the basis for secular values. Its general acceptance, however, did give "an enormous thrust. . . . to the scientist's self confidence." (Veysey, 1965, 144)

Science found, in the words of Dael Wolfle "a home in the university" as the nineteenth century progressed, the consequence of the secularization of higher education and of the "energy, persuasiveness, and planning and scheming of a group of dedicated men who wanted to develop the universities and improve opportunities for research, and who tried every possible sponsor before settling on the university as the principle site of scientific work." (Wolfle, 1972, 61) Within the universities, scientists obtained many of the resources and more of the freedom from restraints their work required; and, in turn, they "led the way in most of the changes that formed the modern

university: specialization in curriculum and investigation, professionalization of the professoriate, and precedents for the practice of external funding of scholarly investigation." (Wolfle, 1972, 89) The university's commitment to research and graduate study, which were in time to dominate all facets of faculty service, represented a consequence of this development. Its impact carried over to the college and in time to all facets of higher education.

Practicality and Specialization

The intellectual transformations of western culture evidenced in the extension of knowledge and the movement toward a secularization of values had its counterpart in two related social developments: the industrial revolution and the prominence in the American society of an egalitarian ideology. "The fundamental social fact of the Industrial Revolution, with its continually accelerated change in the technique of applied science, and the revolution in the life of man brought about by the growth of cities and the utilization of new inventions, has brought home to every man the realization that our whole civilization is in the process of thoroughgoing reorganization." (Randall, 490)

For the nineteenth century this meant alteration of political, economic, religious, and moral components of life and the passing of what historian William Williams called the "age of mercantilism," attuned to the European-oriented culture of the eastern seaboard and headed by an educated elite who had led the nation to its independence and established a republican form of government. The new culture oriented to the material aspects of life and rewarding practical achievements accompanied an economic frontier in commerce; business, and industry beckoned those with ability and ambition. A geographical frontier pushing west offered prospects of independence, a livelihood, and sometimes a fortune to those able to master the physical environment. The

new spirit was pervaded with an esteem for material achievements associated with thousand-mile railroads, great buildings and bridges, immense farms and ranches, large industrial and commerical enterprises, and the many evidences of a corporeal character. For the ongoing life of the nation this translated into an espousal of economic opportunity for those who wished to grasp it, rationalized into a hierarchy of values, "the Weltanschauung of laissez faire." The nation was transformed from "an established newcomer in the society of nations into the world's leading industrial country in less than three generations." (Williams, 1973, 232, 277)

> Against this background the college education of earlier times seemed hopelessly antiquated; it had to be wrested out of the ruts in which it had so long traveled. A revolt against it grew, compounded primarily of four elements: rejection of the tyranny of classical and theological studies, championship of science, insistence on attention to agriculture and the mechanic arts, and --- most important of all -- a demand for greater democracy in education. (Nevins, 2)

That the revolt proved successful now requires no documentation. During the last part of the nineteenth century, as discussed, classics and theology had given way to science and secular values and control. What remained was the achievement of an applied orientation in tandem with an expansion in opportunity. As the industrial system matured, the higher learning became integral to if not emeshed in the need for designed formal preparation in place of apprenticeship training and for persons with this education to fill the openings beginning to increase in agriculture, business, industry, and governments. Such opportunities expanded in their turn to include a spectrum of new employment from applied engineering to psychological-based personnel services. In the course of time the blue collar worker has become a minority of the work force, as the requirements of technology and science and the

complicated systems of production and development which accompanied them have demanded not trained but educated manpower.

The sinews of the revolt against the early colleges were formed of two related movements: (1) that of the land grant colleges as an impetus to practical or utilitarian programs of study and to the expansion of public higher education and (2) that of greater freedom for student selection of courses which can be designated as the elective point of view and which encouraged specialized instruction and a proliferation of professional and vocationally-oriented majors.

The land grant colleges originated in the Morrill Act of 1862. The Act set aside federal lands proceeds from the sale of which were to be used to establish at least one college in each state "where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to each such branches of learning as are related to agriculture and the mechanics arts." (Hofstadter and Smith, II, 1961, 568) From a very meager beginning (enrolling only about 2,200 students by 1882) and usually representing a very marginal break with the traditional colleges, the "ag and tech" or "cow" colleges gained momentum in subsequent decades which opened them up to a combined enrollment of more than 25,000 by 1900 and 133,000 within two decades more. From a few classically-oriented courses at the outset, they amassed during this period substantial and varied programs in the liberal arts and sciences and professional studies which extended past the baccalaureate into the graduate level.

The importance of the land grant college movement, however, lies not so much in the institutions which comprised it as in the impetus it gave the increased public support of higher education (primarily on the part of state

legislatures but also in reaffirming earlier precedents for federal funding) and in the opening up of the higher learning to studies of an immediate, or practical, value in society.* Public support necessitated greater responsiveness to public ideas and desires expressed through legislative appropriations; public desires in turn accentuated a curriculum geared to engineering, agriculture, home economics, veterinary medicine, business administration, and the like.** This reflected the idea and ideal of the democracy of knowledge that cut across the grain of classical learning and opened the colleges to a broader spectrum of students. Future farmers, merchants, geologists, engineers, veterinarians studied as equals to those planning careers as lawyers, doctors, theologians, and scholars. Women found the opportunity to attend with men as the land grant tradition encouraged coeducation. Furthermore, the land grant movement involved support for agricultural experiment stations and, in turn, the application of the findings of university science for the improvement of farming. Higher education became by World War I a source of expertise for the society in a variety of areas not the least of which, as the era of progressive reform gained momentum, was professorial participation in political policy making. This integration of higher education and society was exemplified by the administration of President Charles R. Van Hise at the University of

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* As one of the first land grant colleges, Cornell opened in 1869 with the announced commitment that a student could find instruction in any field of study and with the largest freshman class in the nation's history two years later in 1871, evidence that a more practical education met with considerable popular approval.

** One study listed the introduction of the new professional studies, as follows: pharmacy, 1868, at the University of Michigan (although a limited program earlier at Tulane); dentistry, 1867, Harvard University; agriculture, 1868, at Cornell University; veterinary medicine, 1868, at Illinois Industrial University and Cornell; architecture, 1868, at Illinois Industrial (1871 at Cornell); business administration, 1881, at the University of Pennsylvania; librarianship, 1897, at the University of Illinois; forestry, 1898, at Cornell; education, 1899, at Columbia University (when Teachers College was incorporated into it); journalism, 1908, at the Missouri School of Journalism (Blauch, 1955) It should be noted, however, that agricultural studies were offered at Yale prior to the Civil War.

Wisconsin which gained prominence for its role in the rejuvenation of the dairy industry, for the technical and social planning services of its faculty to the state government under Governor Robert M. La Follette, and for a well-developed system of extension courses which reached every part of the state.

The correlate to the land grant movement was support for the freedom of students to select courses they would study. Although provision for student election of courses antedated the Civil War by several decades, usually involving modern language alternatives to Greek and Latin and limited study in the sciences, opportunity for students to select their studies did not gain general acceptance until the last two decades of the century. While it certainly stands as a major innovation for higher education, the elective point of view gained support slowly and grudingly from faculty members. Complete freedom to elect courses remained far more an ideal than a reality. Nevertheless, nearly all of the important institutions had in one form or another at least a partial elective system. "A survey of the curricular plans of the 1880s, for example, reveals two extremes, that of substantial freedom of Harvard at one end that of the fixed, classical courses of the small northeastern and southern colleges at the other. In between came a wide diversity of elective curricula from more than fifty percent required subjects to a wide freedom of choice." (Duryea, 1948, 54) The importance of the elective point of view, however, lay as much in the realm of academic politics as in program innovation. It represented a principle that served as a compromise between the resistance of adherents of the established classical studies and the promoters of the new education, allowing the ultimate decision to rest with student choice but hedging this choice so that the older studies retained the protection, for the time being at least, of residual required

courses. In the process it proved a vehicle for change by allowing the introduction of the newer sciences and more practical subjects.

In this sense, the elective point of view facilitated curricular arrangements whereby the advances in specialized learning taking place at the graduate level carried into the undergraduate curriculum. In the process it contributed the rationale whereby professors and administrators supported specialization as the basis for a college education and the introduction of a variety of subjects which thickened course listings in college catalogs from a page or two in 1870 to literally dozens by 1910. Specialization in its turn led to the departmentalization of the academic and organizational structure of both universities and colleges. Finally, it paved the way for the establishment of the credit system as the means by which institutions could handle the large clientele accompanying the expansion of educational opportunity. By the turn of the century, "the credit system. . . had come to embrace the whole American educational system above the level of the grade school," (Gerhard, 1955, 659) and provided the means for coherent structure for all of education. In the process, a bureaucratic phalanx of administrative officers came to the campuses to handle the spectrum of relationships ranging from admissions to graduation. Finally, through the credit system, the elective point of view solved the critical problem of "how to accommodate and afford all the new knowledge that was spilling out of the universities and taking shape as new academic subjects." (Rudolph, 1977, 177)

CONCLUSION

By the end of the nineteenth century, the transition from medieval to

modern had about run its course. The Christian theological unity of western culture enforced by an all-encompassing Church had fallen apart under the pressures of the Renaissance and Reformation accompanied by the extension of utilitarian values and of the political power of national states. Until the end of the nineteenth century, however, the process remained incomplete. Revealed religion had continued to dominate western culture as the basis for why and how people lived in both Protestant and Catholic lands. It was the intellectual ferment of the Enlightenment which initiated the final epoch, that during which scientific knowledge finally pushed revelation aside to establish itself as the intellectual genre for western culture. Secular criteria formed a new kind of unity for western thought.

For the creation of higher education as we know it today, a critical aspect of this evolution lay in Germany where the universities beginning in the eighteenth century finally proved responsive to rationalism and science and provided an establishment which supported the expansion of modern knowledge. Under a series of progressive governments in the German states of the eighteenth century, the remnants of medieval philosophies and constraints of conformity to religious doctrine loosened and professors slowly obtained a freedom to think about and investigate the implications of scientific learning. "The rise in the status of the professor, and his successful fight to introduce new thought and freer research into the old institutions, made an intellectual revolution in Germany hardly less important than the contemporary political revolution in England." (Smith, 1934, II, 403)

In its turn, the American university emulated to a high degree its German predecessor, but did so within the context of the American society. As a consequence two conditions were fashioned. In the first, the American

university actively regained the three functions of the medieval era: the extension of knowledge (although in an empirical rather than a speculative vein), the preparation of individuals for positions in the "advanced" vocations, and the maintenance of the idea of an educated person as one informed in the liberal studies. In the second, the American university constituted one, although the major one, of a variety of higher institutions which the circumstances of the American society produced. It served as the fountainhead of a variety of an increasingly complex and diversified array of colleges and other advanced schools.

An assessment of this array reveals a system in the process of achieving form and function at the turn of the twentieth century. The influences of the transition stand out clearly enough in an established graduate school providing "a home" not only to science but to the endeavors connected with research and scholarship over the broad spectrum of knowledge. But the extension of knowledge did not stand alone; it combined with an involvement in its application responding to economic, political, and social requirements of society in turn becoming increasingly complex. As the land-grant colleges contributed scientific findings to make possible advances in agriculture, professional schools combined with specialization to make possible parallel advances necessary for technological developments associated with business, industry, and other facets of the American culture. While they may have lost their central role in education, the humanists retained a base on campus to maintain a dedication to the esthetic, artistic, and philosophical lineaments of modern culture. The newest entree, that of the social sciences, had established itself securely and begun to contribute its distinctive insights into the handling of human interrelationships inevitably aggravated by the

complexities of the modern era. Finally, the traditional fields of medicine, law, and even theology retained their role and built upon their more pristine disciplinary associates. Within academe, the professor also was gaining a special status as a specialist and expert of societal worth and consequently as a professional who transcended the less esteemed role as teacher of youth.

While the university gained a position of leadership in higher education, the idea of a four-year, baccalaureate college education persisted vigorously within American higher education, both as a central facet of the university and the numerous liberal arts institutions which dotted the national landscape. It preserved the ideal of a liberally educated person. The bachelor's degree retained its appeal as a label of social status and an entree into adult life for those with the ability, ambition and, most frequently, an appropriate socio-economic family. In a line with a long tradition, the campus culture of the students associated with the undergraduate college held its own accolades that fitted at best uneasily with the academic, reinforcing the cleavage between learner and teacher held in check by the former's need for the latter's certification.

To the traditional college and new university, the turn of the century produced another institution, destined in its turn to impact most influentially upon education in this country: the two-year college. Formed in an effort to distinguish the higher learning from preparatory work of the secondary level and responding to pressures for a limited technical-vocational training arising as the older apprenticeship system foundered with industrial expansion, this institution appeared first as a junior college and then, after World War II, as the popular and expanded community college.

Finally, one might include in this higher education system other

institutions of special purpose. Normal schools, for example, had begun, under the control of state education departments, to prepare teachers for primary and secondary schools. In their turn, they were to join the university movement as first teachers colleges and then general purpose state colleges. Black colleges had gained a measure of significance to make up in small part for the discrimination this minority experienced in the mainstream of higher education. And there existed a variety of postsecondary institutes and schools designed primarily for profit but which provided on the whole a highly limited and vocational type of advanced study designed to prepare individuals for jobs.

Thus, the concept of the higher learning had acquired in this country as it entered the twentieth century a broadened conception of its role in society and an institutional base, in embryonic form at least, for its application in an increasingly wide swath of social activity. In the decades which followed there evolved a diversified system of institutions which performed much as did the medieval university for the extension of knowledge and its application as preparation for active participation in society. What had been previously an endeavor limited to a small, and usually privileged, segment of society in time became an accepted avenue of advancement for an estimated forty to fifty percent. The central impulse of the transition from the medieval to the modern -- the progression and extraordinary elaboration of knowledge of the material world, of nature in the broadest sense -- had fueled by the turn of this century a knowledge-based culture which has required increasing access to formal education. It also has created a scientific and technological complexity which necessitates a reassertion of the third facet of the higher learning -- that of a liberal or common education -- to achieve an improved societal ability to understand and thus cope with its consequences.

NOTE 1

The medieval period and the role of its universities presents a history sufficiently complex that if warrants either a full discussion or a very brief identification of its import. The purpose and limits of this analysis support the latter alternative. For further investigation, among the several good discussions of the medieval university (short of the still classic three-volume account by Rashdall) that by A. B. Cobban is probably the best. The chapter of Marjorie Reeves contributes significant insights into the nature of this medieval institutions, especially in terms of its influence upon the higher learning of England.

However, one facet of the medieval background pertinent to this discussion does deserve at least brief attention. That has to do with what I perceive as the origins of secular knowledge or, more accurately perhaps, the first movement away from what J. Bronowski calls a superstitious or super-natural interpretation of nature to a rational, observational, or scientific basis for knowing. Bronowski dates the origins of the "scientific revolution" to the sixteenth century. ". . . I think that in about 1500 something very remarkable happened in all intellectual history," he writes, "of which science is a part and a crucial part." (Magic, Science, and Civilization, Columbia University Press, 1978, pages 24-25.)

I could hardly disagree with Bronowski's knowledge of the history of science. Yet, that intellectual ferment which centered in the medieval universities of the late twelfth and early thirteenth centuries and responded to the appearance of Latin translation of Aristotle's philosophies did for the first time suggest alternative bases for understanding existence to the established theology of the Roman Church. It took the form of a conflict which is superficially described as that between the advocates of realism who looked to universal conceptions as fundamental and nominalists who supported the existence of God and doctrines of the Church through reason.

In its essence, the realism-nominalism controversy centered upon whether there was a source of truth independent of man or whether reality is that perceived through the intellect and senses. The opening up of the human mind to the possibility of an understanding of life other than through the prescriptions of doctrinal faith, to my view, was the underpinning of what is called the intellectual renaissance of the twelfth century and embarked western culture onto the passage which led ultimately from the medieval to the modern worlds, from an intellectual unity of a transcendental authority based upon prescriptive faith or a universal truth to the rational basis of early twentieth century science.

The passage followed an evolutionary channel whereby human reason looked to the study of nature as a means for understanding transcendental truth and thus enhanced achievements and values associated with the secular realm. The major way station of the passage, therefore, might be that of the Enlightenment. The passage there, however, was accompanied by other changes such as commercialism and early industrialization, the Protestant Reformation,

and the concentration of power in national states. Throughout the evolution of European and then American thought, one finds the primary strands connected to an increasing reliance upon reason for an understanding of nature or "reality" until in the eighteenth and nineteenth century this was augmented by attention to human social and then personal or psychological character. One finds this explored, for example, by John H. Randall (The Career of Philosophy, Vol. I, Columbia University Press, 1962).

What was revolutionary for the emergence of the American university at the turn of this century was the incremental advances of science. What Bronowski called "the strategy of scientific knowledge: served as the vital force which inevitably changed the intellectual world view. While it undoubtedly is true that this force gained its first form in the sixteenth century, it does appear equally accurate to note that its central quality, the application of human reason as a basis for understating, originated in the renaissance of the twelfth century. This constitutes the essence of the transition from medieval to modern cultures which ultimately shaped the higher learning even though it did not gain its first limited, reluctant admission until well into the eighteenth and, more completely, in the nineteenth century.

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